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EXAMINER	
MERED, HABTE	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/663,870	ELLIOTT, BRIG BARNUM	
	Examiner	**Art Unit**	
	Habte Mered	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/4/05&9/16/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to communication filed on 9/16/2003.

2. Claims 1-39 are pending in the instant Application. Claims 1, 6, 16, 17, 26, 31, 35, and 37-39 are the base independent claims.

Claim Objections

1. DU Claim 1, 5 are ~~is~~ objected to because of the following informalities: The limitation in line 6 of claim 1 that recites recording a second time value representing a time at which a portion of the timestamp message is being transmitted is not explicitly clear where the actual recording occurs. It should clearly indicate that the recording occurs in the first node as it is clearly thought in the specification that the 1st node records the 2nd time value. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. **Claims 26 and 31**are rejected under 35 U.S.C. 102(b) as being anticipated by Stewart et al (US 6, 414 635 B1), hereinafter referred to as Stewart.

Stewart teaches a method of determining the precise position of a communication device.

2. Regarding **claim 26**, Stewart discloses a communication node **(Figure 1, element 110A PCD)** comprising: a receiver **(Figure 1, element 111 and Column 7:42-**

57 and Column 8:1-10) configured to receive a message from another communications node **(Figure 1, element 120 AP)**, the message comprising a first value **(Figure 14 step 2022 wherein the first value is the transmitting timestamp of the AP)**; logic configured to: generate a new message **(Figure 14, step 2042)**, store the first value in the new message, and store a second time value in the new message **(Column 4:1-10)**, the second time value representing a time period during which the communications node processes a message **(Column 4:10-18)**; and a transmitter configured to transmit the new message to the other communications node **(Figure 14, step 2042; Figure 1, element 111 and Column 7:42-57 and Column 8:1-10)**

3. Regarding **claim 31**, Stewart discloses a method, performed by a communications node **(Figure 1, element 110A PCD)**, for processing a message, the method comprising: receiving a message from another communications node **(Figure 1, element 120 AP)**, the message including a first value **(Figure 14 step 2022 wherein the first value is the transmitting timestamp of the AP)**; creating a new message in response to the receiving **(Figure 14, step 2042)**; storing the first value in the new message **(Column 4:1-10)**; storing a second time value in the new message **(Figure 14, steps 2024 and 2042)**, the second time value representing a time period estimate based on a third time value representing a time at which at least one previous message was received and a fourth time value representing a time at which at least one previous new message was transmitted **(Note that the second time value can easily be determined from the difference of the 2nd timestamp in Figure 14 step 2042 indicating reception by the PCD and the 3rd timestamp indicating transmission by**

the PCD and is further illustrated in Column 4:1-18 and Column 31:1-53) ; and transmitting the new message to the other communications node. **(Figure 14, step 2042; Figure 1, element 111 and Column 7:42-57 and Column 8:1-10)**

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. **Claims 1-25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart et al (US 6, 414, 635), hereinafter referred to as Stewart in view of Holmeide et al (US Pub. No. 2003/0142696), hereinafter referred to as Holmeide.

2. Regarding **claim 1**, Stewart discloses a method for determining distance between a first node **(An AP (Access Point) in Figure 14B and Figure 1)** and a second node **(An AP (Access Point) in Figure 14B and Figure 1)** in a network, comprising: generating a timestamp message at the first node **(Figure 14 B, Step 2022)**, the timestamp message including a first value **(Figure 14 B, Step 2022)**; transmitting the timestamp message to the second node **(Figure 14 B, Step 2022)**; receiving the timestamp message at the second node **(Figure 14 B, Step 2024)**; generating a new timestamp message at the second node in response to receiving the timestamp message **(Figure 14 B, Step 2024)**; storing the first value from the timestamp message in the new timestamp message **(Column 4:1-9)**; storing second node processing time information in the new timestamp message **(Figure 14 B, Steps**

2042 and 2028. Here the second node processing time info can be determined by determining the difference between the reception and transmission time at the second node from the time stamps included in the timestamp message or packet sent from the PCD to the AP. It should be noted that it is well known in the art that sending node processing time or turnaround time via a message during a ranging process is well known in the art and refer the Applicant to McCorkle (US Pub. No. 2003/0174048). See McCorkle's Paragraph 125 and step 11 in Figure 7); transmitting the new timestamp message to the first node **(Figure 14 B, Steps 2042 and 2028)**; receiving the new timestamp message **(Figure 14 B, Step 2030)**; recording a third time value representing a time at which a portion of the new timestamp message is received **(See Column 4:10-18)**; and determining the distance between the first node and the second node using the first value, the second time value, the third time value, and the second node processing time information. **(See Figure 14B, Step 2032 and Column 4:1-18 and Column 31:1-53)**

Stewart fails to teach recording a second time value representing a time at which a portion of the timestamp message is being transmitted which represents an accurate time of the actual transmission of the timestamp message.

Holmeide teaches distribution of time information packets.

Holmeide discloses recording a second time value representing a time at which a portion of the timestamp message is being transmitted which represents an accurate time of the actual transmission of the timestamp message. **(See Paragraphs 39 and 40 and equations 3 and 4)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Stewart's method by incorporating the step of recording a second time value representing a time at which a portion of the timestamp message is being transmitted. The motivation for storing an accurate time of the actual transmission of the timestamp message is to determine round trip delay and local clock offset as illustrated by Holmeide in paragraph 39.

3. Regarding **claim 2**, Stewart discloses a method wherein the transmitting the timestamp message to the second node and the transmitting the new timestamp message to the first node include: transmitting the timestamp message and the new timestamp message over a free-space link. **(See Figure 2)**

4. Regarding **claim 3**, Stewart discloses a method wherein the free-space link includes a radio link. **(See Column 8:25-40)**

5. Regarding **claim 4**, the combination of Stewart and Holmeide discloses a method wherein the free-space link includes an optical link. **(See Holmeide's Paragraph 3)**

6. Regarding **claim 5**, the combination of Stewart and Holmeide discloses a method wherein the transmitting the timestamp message to the second node and the transmitting the new timestamp message to the first node include: transmitting the timestamp message and the new timestamp message over a fiber optic link. **(See Holmeide's Paragraph 3. It should be noted that Stewart's or Holmeide's teachings are not dependent as the timestamp packet messages can be transmitted in any medium.)**

7. Regarding **claims 6 and 16**, Stewart discloses a method for determining distance between a first node **(An AP (Access Point) in Figure 14B)** and a second node **(An AP (Access Point) in Figure 14B)** in a network, the method, performed by the first node, comprising: generating a timestamp message, the timestamp message comprising a first value **(Figure 14 B, Step 2022)**; transmitting the timestamp message to the second node **(Figure 14 B, Step 2022)**; receiving a new timestamp message from the second node **(Figure 14 B, Step 2030)**, the new timestamp message comprising the first value and a third time value representing the time during which the second node processed the timestamp message **(Column 4:1-9)**; recording a fourth time value representing a time at which the new timestamp message is received **(See Column 4:10-18)**; and determining the distance between the first node and the second node using the second time value, the third time value, and the fourth time value. **(See Figure 14B, Step 2032 and Column 4:1-18 and Column 31:1-53)**

Stewart fails to teach recording a second time value representing a time at which a portion of the timestamp message is being transmitted which represents an accurate time of the actual transmission of the timestamp message.

Holmeide discloses recording a second time value representing a time at which a portion of the timestamp message is being transmitted which represents an accurate time of the actual transmission of the timestamp message. **(See Paragraphs 39 and 40 and equations 3 and 4)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Stewart's' method by incorporating the step of recording

a second time value representing a time at which a portion of the timestamp message is being transmitted. The motivation for storing an accurate time of the actual transmission of the timestamp message is to determine round trip delay and local clock offset as illustrated by Holmeide in paragraph 39.

8. Regarding **claim 17**, Stewart discloses a communications node **(See Figure 2 – Access Point)** comprising:

a transmitter configured to transmit a message to another communications node **(Figure 2, element 210A,B),** the message comprising a first value **(Figure 14 B, Step 2022)**; a receiver configured to receive a message from the other communications node **(Figure 2, element 210A,B)**, the received message comprising the first value and a second time value representing a time period that the other communication node processed the message**(Figure 14 B, Steps 2042 and 2028. Here the second node processing time info can be determined by determining the difference between the reception and transmission time at the second node from the time stamps included in the timestamp message or packet sent from the PCD to the AP. It should be noted that it is well known in the art that sending node processing time or turnaround time via a message during a ranging process is well known in the art and refer the Applicant to McCorkle (US Pub. No. 2003/0174048). See McCorkle's Paragraph 125 and step 11 in Figure 7)**; and logic **(Figure 2, element 211)** configured to: record a fourth time value representing a time at which the received message is received by the receiver **(See Column 4:10-18)**, and determine distance between the communications node and the other communications node based on the

second time value, the third time value, and the fourth time value. **(See Figure 14B, Step 2032 and Column 4:1-18 and Column 31:1-53)**

Stewart fails to teach recording a second time value representing a time at which a portion of the timestamp message is being transmitted which represents an accurate time of the actual transmission of the timestamp message.

Holmeide discloses recording a second time value representing a time at which a portion of the timestamp message is being transmitted which represents an accurate time of the actual transmission of the timestamp message. **(See Paragraphs 39 and 40 and equations 3 and 4)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Stewart's' method by incorporating the step of recording a second time value representing a time at which a portion of the timestamp message is being transmitted. The motivation for storing of an accurate time of the actual transmission of the timestamp message is to determine round trip delay and local clock offset as illustrated by Holmeide in paragraph 39.

9. Regarding **claims 7 and 19**, Stewart discloses a method wherein the first node communicates with the second node over a free-space link. **(See Figure 2)**

10. Regarding **claims 8 and 20**, Stewart discloses a method wherein the free-space link includes a radio link. **(See Column 8:25-40)**

11. Regarding **claims 9, 10 and 21**, the combination of Stewart and Holmeide discloses a method wherein the first node communicates with the second node over a fiber optic link. **(See Holmeide's Paragraph 3. It should be noted that Stewart's or**

Holmeide's teachings are not dependent as the timestamp packet messages can be transmitted in any medium.)

12. Regarding **claim 11**, Stewart discloses a method of further comprising: obtaining the first value and the second time value by reading a local clock. **(Stewart Column 31:5-10 and Holmeide's paragraph 35)**

13. Regarding **claims 12 and 25**, the combination of Stewart and Holmeide discloses a method wherein the determining includes: determining a round-trip time by subtracting the second time value and the third time value from the fourth time value, and

determining the distance between the first node and the second node by dividing the round-trip time by two. **(See Stewart Column 4:1-18 and Holmeide's equations 3 and 4)**

14. Regarding **claim 13**, the combination of Stewart and Holmeide discloses a method further comprising: transmitting, prior to transmitting the timestamp message, a first message to the second node, the first message instructing the second node to stop enqueing messages for transmission and transmit messages already enqueued, wherein the transmitting the timestamp message occurs a predetermined time period after transmitting the first message. **(See Holmeide's Figure 3 steps 101 and 105 and paragraph 44)**

15. Regarding **claim 14**, the combination of Stewart and Holmeide discloses a method wherein the predetermined time period is a maximum period needed for the second node to transmit enqueued messages. **(See Holmeide's Paragraph 45)**

16. Regarding **claim 15**, the combination of Stewart and Holmeide discloses a method wherein the predetermined time period is an amount of time in which the second node is statistically likely to transmit enqueued messages. **(See Holmeide's Paragraphs 46 and 47)**

17. Regarding **claim 18**, Stewart discloses a communication node wherein, when transmitting the message, the transmitter is configured to: transmit the message via a packetized communications link. **(See Figure 14 B – timestamp messages are packets)**

18. Regarding **claim 22**, Stewart discloses a communication node wherein, when transmitting the message, the transmitter is configured to: transmit the message via a Carrier Sense Multiple Access (CSMA) based communication link. **(See Column 8:54)**

19. Regarding **claim 23**, the combination of Stewart and Holmeide discloses a communication node wherein the first time value is stored in a header of the message. **(See Holmeide Figure 2)**

20. Regarding **claim 24**, the combination of Stewart and Holmeide discloses a communication node of wherein the first time value is piggybacked into a message that is scheduled to be transmitted to the other communications node. **(See Stewart Figure 14B step 2022)**

21. **Claim 27** is rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart et al (US 6, 414, 635), hereinafter referred to as Stewart in view of Agrawala et al (US 7, 224, 984 B2), hereinafter referred to as Agrawala.

22. Regarding **claim 27**, Stewart fails to disclose a communication node wherein the time period is an estimate based on a third time value that represents a time at which a last bit of a previous message was received by the receiver and a fourth time value representing a time at which a last bit of a previous new message was transmitted by the transmitter.

Agrawala discloses a system for positioning and synchronizing wireless nodes.

Agrawala discloses a communication node wherein the time period is an estimate based on a third time value that represents a time at which a last bit of a previous message was received by the receiver and a fourth time value representing a time at which a last bit of a previous new message was transmitted by the transmitter. **(Column 5:35-50)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Stewart's method by incorporating the step of wherein the time period is an estimate based on a third time value that represents a time at which a last bit of a previous message was received by the receiver and a fourth time value representing a time at which a last bit of a previous new message was transmitted by the transmitter. The motivation for storing an accurate time of the actual transmission of the timestamp message is to determine round trip delay and local clock offset.

23. **Claims 28 and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart in view of Agrawala as applied to claim 27 above, and further in view of Fleming et al (US 6, 795, 491 B2), hereinafter referred to as Fleming.

Fleming teaches Spread Spectrum Localizers.

24. Regarding **claims 28 and 29**, the combination of Stewart and Agrawala fails to disclose a communication node wherein the logic is further configured to: update the time period estimate and wherein, when updating the time period estimate, the logic is configured to: record a fifth time value that represents a time at which a last bit of the message is received by the receiver and a sixth time value representing a time at which a last bit of the new message is transmitted by the transmitter,

Fleming discloses a communication node wherein the logic is further configured to: update the time period estimate and wherein, when updating the time period estimate, the logic is configured to: record a fifth time value that represents a time at which a last bit of the message is received by the receiver and a sixth time value representing a time at which a last bit of the new message is transmitted by the transmitter. **(See Figure 7b, where two different values of turn-around time are recorded as further evidenced in Column 32:40-49 and Column 34:10-19)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Stewart's' and Agawala's communication node by incorporating the step of wherein the logic is further configured to: update the time period estimate and wherein, when updating the time period estimate, the logic is configured to: record a fifth time value that represents a time at which a last bit of the message is received by the receiver and a sixth time value representing a time at which a last bit of the new message is transmitted by the transmitter. The motivation for determining the turn-around time on a continuous basis is to gain accuracy in distance determination.

25. **Claims 30 and 34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart et al (US 6, 414, 635), hereinafter referred to as Stewart in view of Fleming et al (US 6, 795, 491 B2), hereinafter referred to as Fleming.

26. Regarding **claims 30 and 34**, Stewart fails to disclose a communication node wherein the logic is further configured to: store information regarding a variance of the second time value in the new message

Fleming discloses a communication node wherein the logic is further configured to: store information regarding a variance of the second time value in the new message. **.(See Figure 7b, where two different values of turn-around time are recorded as further evidenced in Column 32:40-49 and Column 34:10-19 and sent in a new message)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Stewart's' communication node by incorporating the step of wherein the logic is further configured to: store information regarding a variance of the second time value in the new message. The motivation for determining the turn-around time on a continuous basis and send each value in a new message is to gain accuracy in distance determination.

27. **Claims 32 and 33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart in view of Fleming.

28. Regarding **claims 32 and 33**, the ~~combination of~~ Stewart ~~and Agrawala~~ fails to disclose a communication node wherein the logic is further configured to: update the time period estimate and wherein, when updating the time period estimate, the logic is

configured to: record a fifth time value that represents a time at which a last bit of the message is received by the receiver and a sixth time value representing a time at which a last bit of the new message is transmitted by the transmitter,

Fleming discloses a communication node wherein the logic is further configured to: update the time period estimate and wherein, when updating the time period estimate, the logic is configured to: record a fifth time value that represents a time at which a last bit of the message is received by the receiver and a sixth time value representing a time at which a last bit of the new message is transmitted by the transmitter. **(See Figure 7b, where two different values of turn-around time are recorded as further evidenced in Column 32:40-49 and Column 34:10-19)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Stewart's' and Agawala's communication node by incorporating the step of wherein the logic is further configured to: update the time period estimate and wherein, when updating the time period estimate, the logic is configured to: record a fifth time value that represents a time at which a last bit of the message is received by the receiver and a sixth time value representing a time at which a last bit of the new message is transmitted by the transmitter. The motivation for determining the turn-around time on a continuous basis is to gain accuracy in distance determination.

29. **Claim 35** is rejected under 35 U.S.C. 103(a) as being unpatentable over McCrady et al (US Pub. No. 2001/0053699), hereinafter referred to as McCrady, in view of Stewart and Holmeide.

McCrady discloses a method and apparatus for determining the position of a mobile communication device.

30. Regarding **claim 35**, McCrady teaches a method for determining distance between a first node and a second node, the method comprising:

transmitting a Request to Send (RTS) frame from the first node to the second node; receiving the RTS frame at the second node; transmitting a Clear to Send (CTS) frame from the second node to the first node in response to receiving the RTS frame; transmitting a message to the second node in response to receiving the CTS frame, the message including a first value. **(See Figure 3 and Paragraphs 47-53, 63 and 64)**

McCrady fails to expressly teach a ranging mechanism that includes receiving the message at the second node; generating a new message at the second node in response to receiving the message; storing the first value from the message in the new message; storing second node processing time information in the new message; transmitting the new message to the first node; receiving the new message at the first node; recording a third time value representing a time at which a portion of the new message is received by the first node; and determining the distance between the first node and the second node using the second time value, the third time value, and the second node processing time information.

Stewart discloses a ranging mechanism receiving the message at the second node **(Figure 14B, step 2024)**; generating a new message at the second node in response to receiving the message **(Figure 14B, step 2042)**; storing the first value from the message in the new message **(Column 4:1-10)**; storing second node processing

time information in the new message **(Column 4:10-18)**; transmitting the new message to the first node **(Figure 14B, step 2042)**; receiving the new message at the first node **(Figure 14B, step 2030)**; recording a third time value representing a time at which a portion of the new message is received by the first node **(Column 4:10-18)**; and determining the distance between the first node and the second node using the second time value, the third time value, and the second node processing time information. **(See Figure 14B, Step 2032 and Column 4:1-18 and Column 31:1-53)**

It would have been obvious to one having ordinary skill in the art at McCrady's method of determining a distance by incorporating a ranging mechanism that includes receiving the message at the second node; generating a new message at the second node in response to receiving the message; storing the first value from the message in the new message; storing second node processing time information in the new message; transmitting the new message to the first node; receiving the new message at the first node; recording a third time value representing a time at which a portion of the new message is received by the first node; and determining the distance between the first node and the second node using the second time value, the third time value, and the second node processing time information. The motivation to add Stewart's ranging mechanism is to increase the accuracy of determining distance between communication devices.

McCrady fails to teach storing, in a memory, a second time value representing a time at which a portion of the message is being transmitted which represents an accurate time of the actual transmission of the timestamp message.

Holmeide discloses storing, in a memory, a second time value representing a time at which a portion of the message is being transmitted which represents an accurate time of the actual transmission of the timestamp message. **(See Paragraphs 39 and 40 and equations 3 and 4)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify McCrady's method by incorporating the step of storing, in a memory, a second time value representing a time at which a portion of the message is being transmitted which represents an accurate time of the actual transmission of the timestamp message. The motivation for storing of an accurate time of the actual transmission of the timestamp message is to determine round trip delay and local clock offset as illustrated by Holmeide in paragraph 39.

31. Regarding **claim 36**, the combination of McCrady, Stewart, and Holmeide teaches a method wherein the determining includes: using the first value to retrieve the second time value from the memory. **(See Paragraphs 39 and 40 and equations 3 and 4)**

32. **Claim 37-39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart in view of Holmeide and McCrady.

33. Regarding **claim 37**, Stewart teaches a method for determining distance between a first node and a second node, the method comprising transmitting a message to the second node and the message includes a first value **(See Figure 14B, step 2022)** receiving the message at the second node **(Figure 14B, step 2024)**; generating a new message at the second node in response to receiving the message

(Figure 14B, step 2042); storing the first value from the message in the new message **(Column 4:1-10)**; storing second node processing time information in the new message **(Column 4:10-18)**; transmitting the new message to the first node **(Figure 14B, step 2042)**; receiving the new message at the first node **(Figure 14B, step 2030)**; recording a third time value representing a time at which a portion of the new message is received by the first node **(Column 4:10-18)**; and determining the distance between the first node and the second node using the second time value, the third time value, and the second node processing time information. **(See Figure 14B, Step 2032 and Column 4:1-18 and Column 31:1-53)**

Stewart fails to teach storing, in a memory, a second time value representing a time at which a portion of the message is being transmitted which represents an accurate time of the actual transmission of the timestamp message.

Holmeide discloses storing, in a memory, a second time value representing a time at which a portion of the message is being transmitted which represents an accurate time of the actual transmission of the timestamp message. **(See Paragraphs 39 and 40 and equations 3 and 4)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Stewart's method by incorporating the step of storing, in a memory, a second time value representing a time at which a portion of the message is being transmitted which represents an accurate time of the actual transmission of the timestamp message. The motivation for storing an accurate time of the actual

transmission of the timestamp message is to determine round trip delay and local clock offset as illustrated by Holmeide in paragraph 39.

Stewart fails to disclose the RTS/CTS message exchange can be modified to actually carry the data required for ranging operation.

McCrady discloses that the RTS/CTS message exchange can be modified to actually carry the data required for ranging operation. **(See Paragraphs 68 and 69)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Stewart's method by incorporating the step of modifying the RTS/CTS message handshake to actually carry data required for ranging operation. The motivation for carrying data required for ranging operation in the RTS/CTS handshake message exchange is to minimize the number of messages sent to effect a ranging operation.

33. Regarding **claims 38 and 39**, Stewart teaches a method for determining distance between a first node and a second node, the method comprising transmitting a message to the second node and the message includes a first value **(See Figure 14B, step 2022)** receiving the message at the second node **(Figure 14B, step 2024)**; storing a second time value representing the time the message is being transmitted by the first node **(Note in Stewart case 1st value equals 2nd time value)**; generating a new message at the second node in response to receiving the message **(Figure 14B, step 2042)**; storing the first value from the message in the new message **(Column 4:1-10)**; storing second node processing time information in the new message **(Column 4:10-18)**; storing a second timestamp message that includes a third value; transmitting the

new message to the first node **(Figure 14B, step 2042)**; recording a fourth time value representing a time at which the message is being transmitted **(Note in Stewart case 3rd time value equals 4th time value)** ; receiving the new message at the first node **(Figure 14B, step 2030)**; recording a fifth time value representing a time at which a portion of the new message is received by the first node **(Column 4:10-18)**; and determining the distance between the first node and the second node using the second time value, the fifth time value, and the second node processing time information. **(See Figure 14B, Step 2032 and Column 4:1-18 and Column 31:1-53)** Stewart also teaches storing the third value from the received message and sending with a new message; storing first node processing time information in the message; transmitting the message to the second node; receiving the message at the second node; recording a sixth time value representing a time at which the message is received by the second node; and determining the distance between the second node and the first node using the fourth time value, the sixth time value, and the first node processing time information. **(These latter steps are mirror images of the steps taught by Stewart in determining the distance between the first node and second node at the first node and are obvious to reproduce at the second node)**

Stewart fails to teach storing, in a memory, a second and a fourth time value representing a time at which a portion of the message is being transmitted which represents an accurate time of the actual transmission of the timestamp message.

Holmeide discloses storing, in a memory, a second and fourth time value representing a time at which a portion of the message is being transmitted which

represents an accurate time of the actual transmission of the timestamp message. **(See Paragraphs 39 and 40 and equations 3 and 4)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Stewart's method by incorporating the step of storing, in a memory, a second time value representing a time at which a portion of the message is being transmitted which represents an accurate time of the actual transmission of the timestamp message. The motivation for storing an accurate time of the actual transmission of the timestamp message is to determine round trip delay and local clock offset as illustrated by Holmeide in paragraph 39.

Stewart fails to disclose the RTS/CTS/ACK message exchange can be modified to actually carry the data required for ranging operation.

McCrady discloses that the RTS/CTS/ACK message exchange can be modified to actually carry the data required for ranging operation. **(See Paragraphs 68 and 69)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Stewart's method by incorporating the step of modifying the RTS/CTS/ACK message handshake to actually carry data required for ranging operation. The motivation for carrying data required for ranging operation in the RTS/CTS handshake message exchange is to minimize the number of messages sent to effect a ranging operation.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Habte Mered whose telephone number is 571 272 6046. The examiner can normally be reached on Monday to Friday 9:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris H. To can be reached on 571 272 7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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